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Misleading Forecasts in Accounting Estimates: A Form of Ethical Blindness in Accounting Standards?

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Abstract The current financial reporting environment, with its increasing use of accounting estimates, including fair value estimates, suggests that unethical accounting estimates may be a growing concern. This paper provides explanations and empirical evidence for why some types of accounting estimates in financial reporting may promote a form of ethical blindness. These types of ethical blindness can have an escalating effect that corrupts not only an individual or organization but also the accounting profession and the public interest it serves. Ethical blindness in the standards of professional accountants may be a factor in the extent of misreporting, and may have taken on new urgency as a result of the proposals to change the conceptual framework for financial reporting using international standards. The social consequences for users of financial statements can be huge. The acquittal of former Nortel executives on fraud charges related to accounting manipulations is viewed by many as legitimizing accounting gamesmanship. This decision illustrates that the courts may not be the best place to deal with ethical reporting issues. The courts may be relied on for only the most egregious unethical conduct and, even then, the accounting profession is ill equipped to assist the legal system in prosecuting accounting fraud unless the standards have been clarified. We argue that the problem of unethical reporting should be addressed by the accounting profession itself, preferably as a key part of the conceptual framework that supports accounting and auditing standards, and the codes of ethical conduct that underpin the professionalism of accountants.

Keywords Ethical accounting estimates · Estimation uncertainty · IASB accounting conceptual framework · Accounting standards · Auditing standards

Abbreviations

ACFE	Association of Certified Fraud Examiners
CPAB	Canadian Public Accountability Board
FASB	Financial Accounting Standards Board
GAAP	Generally Accepted Accounting Principles
IAS	International Accounting Standard
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standard
IFAC	International Federation of Accountants
ISA	International Standard on Auditing

Introduction

> It is unclear whether Enron's financial statements actually violated any accounting standard, or whether Andersen violated any auditing standard. Libby and Thorne (2004, p. 494)

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In the current financial reporting environment, virtually every item on an enterprise's balance sheet or income statement is based to some extent on managerial estimates and forecasts. Users of the information are left largely in the dark about where the facts end and management's conjectures begin, making it difficult to know whether the information is reliable, or unethically manipulated (Lev et al. 2010). The purpose of this paper is twofold: (i) to argue that unethical financial reporting is facilitated by loose guidelines within professional accounting standards that fail to prevent the manipulation of managerial estimates based on forecasts or predictions of future events, and (ii) to provide evidence on the prevalence and economic consequences of such reporting. We use the concept of "ethical blindness" (Palazzo et al. 2012) to characterize such loose guidelines. Palazzo et al. (2012, p. 325) define ethical blindness as the "inability of a decision maker to see the ethical dimension of a decision."

The quoted passage at the beginning of this section indicates how weaknesses in professional accounting standards can create opportunities for unethical financial reporting. The 2006 Enron trial of former executives did not find either executive guilty of violating accounting standards. Instead they were found guilty of lying through other media. In fact, two expert accounting witnesses appeared at the trial to testify that Enron's accounting was fully in conformity with the accounting rules of professional standards (Craig et al. 2014). This is similar to the reasoning in the 2013 court verdict on Nortel's executives, except that no lying via other media was found in that case:

> The acquittal of Nortel senior executives, many will argue, has all but granted a free legal pass to any company that wants to massage its financial reports to present better numbers to an unknowing public … With the Nortel verdict as precedent, an awful lot of accounting games may now have a stamp of legal legitimacy. (Parkinson 2013).

The Economist (2014) warns that these problems are getting more common:

> If accounting scandals no longer dominate headlines as they did when Enron and WorldCom imploded in 2001–2002, that is not because they have vanished but because they have become routine. … such frequent scandals call into question whether this is the best the Big Four [global accounting firms] can do …. If investors stop trusting financial statements, they will charge a higher cost of capital to honest and deceitful companies alike, reducing funds available for investment and slowing growth. (The Economist 2014, p. 24).

The collapse of Enron in 2001 is viewed widely as a watershed event for governance, accounting, auditing, and regulation. It continues to influence the role of ethics in twenty-first century organizations (Bishop 2013, p. 635). Specifically, the role of ethics is becoming more preventative in nature. Important initiatives are being proposed to deal with the increasing 'shades of grey' that characterize corporate activities (e.g., see PCAOB 2014, pp. 25–29, outlining regulator concerns about the auditability of accounting estimates in an increasingly complex business environment). Consistent with these concerns, we argue that accounting standard setting must go beyond its focus on informativeness; it should more explicitly address the ways that standards can facilitate fraudulent and unethical reporting (Amernic and Craig 2010).

The potential for the role of ethics in financial reporting is indicated by Libby and Thorne (2004) and Benston and Hartgraves (2002), who note that Enron's financial reporting was arguably in compliance with generally accepted accounting principles (GAAP). However, compliance with accounting rules does not necessarily guarantee ethical reporting in all contexts. Accounting information aims to capture the economic substance of entity-specific transactions, events, and business model. When it does so, it is considered to result in 'fair presentation,' in the sense that it can be assessed as having been reported ethically.

Rules-based accounting can be described as a set of detailed guidance on specific accounting issues with few if any guiding principles and concepts. Rules-based systems are usually the results of evolution of industry practices, but frequently important inconsistencies can arise when rules evolve spontaneously this way. Another problem with rules-based accounting is that it is less likely to be appropriate to new business circumstances and, without overall guiding principles, this can lead to inconsistent, inappropriate, and potentially unethical applications of the rules. Principles-based systems have evolved over the last 80 years to address the inadequacies of rules-based accounting.

Principles-based accounting means having an appropriate conceptual framework with clearly defined, generally accepted objectives of financial reporting and appropriate concepts and principles to help achieve the objectives. True principles-based accounting would also mean that the conceptual framework is the overarching authority. If there is a conflict between detailed standards and the conceptual framework in a particular context, then the conceptual framework should take precedence so that the overall objectives of the conceptual framework are met in all situations. This is sometimes referred to in the literature as the fairness of presentation override (Zeff 2007; Alexander

and Archer 2003; also see IFAC 2015, ISA 701.4(a) and A5; and IFAC 2014a, ISA 200.13(a)). Failure to have such an override role for the conceptual framework may mean that rigidly complying with an accounting rule, without standing back to consider the fairness of the resulting information as the ultimately decisive requirement, could lead to ethical blindness. We argue that the ability for a principles-based accounting system to promote ethical accounting is undermined if the principles are too loose, or are considered less authoritative than specific detailed rules.

In a principles-based reporting system, meeting the objectives of the conceptual framework by conforming to basic principles of that framework should take primacy over more specific guidance (i.e., rules) designed for more particular contexts. In particular contexts, if rules and principles are in conflict, we argue that specific detailed guidance should not be allowed to override the more general principles. Essentially, we argue that a conceptual framework with the strength to prevent ethical blindness in financial reporting should uphold strong principles that take precedence over detailed rules.

It is a concern, therefore, that the International Accounting Standards Board's (IASB) latest proposal to improve the existing conceptual framework is ignoring the potential of the accounting standards to be abused, and mislead users (IASB 2015a). Perplexingly, the IASB's attitude[1] seems to be that ill-intentioned management will always 'bend' the rules and that, as a consequence, accounting standard setters are pardoned from considering how financial reporting is abused (IASB 2014). The IASB should not be blasé about such a major problem. Everyone involved in the financial reporting process, including the IASB, should be alert to the important role that accounting standards play and to the importance of the overarching conceptual framework within which they are formed and operate in the capital markets, legal systems, and corporate regulation of modern economies (Soll 2014; Waymire 2015). In our view, this means considering how the standards can be abused through lack of truthfulness in accounting numbers.

A principles-based financial reporting system that meets society's expectations should have agreed upon objectives and appropriate accounting concepts and principles that provide a framework for more detailed guidance in meeting the objectives. The focus of our paper is on the key role of the estimation uncertainty concept of the framework. In measurement of reported accounting numbers, the degree of estimation uncertainty is crucial to influencing the truthfulness of the accounting and therefore there should be principles in the conceptual framework related to the truthfulness of the accounting numbers.

Following these arguments, in this paper we propose that the way to more ethical accounting will, at a minimum, require that accounting numbers be verifiably more likely to be truthful, rather than not truthful. This is similar to the preponderance of evidence criteria used in civil law trials. It is the amount of evidence necessary for the plaintiff to win in a civil case (e.g., auditor being sued for negligence in doing the financial statement audit). It is the degree of proof which is more probable than not (Nolan 1990).

When extended to the forecasts about future outcomes, which are required to develop many accounting estimates, we interpret 'probable' to mean that the estimate should be more likely true than not, based on the sufficiency and appropriateness of the evidence that is available. Failure to meet the conditions of sufficiency and appropriateness for the supporting evidence means that the estimate is not verifiable. Thus, we propose that a verifiability as well as truthfulness conditions be met for ethical reporting of an accounting estimate in general purpose financial reporting. Neither of these conditions is required in the revised conceptual framework currently being proposed by IASB (2015a).

To summarize, we define ethical accounting as being truthful about the facts and as having a sufficiently high probability of being truthful about the future. Omissions of relevant facts or probable future events would also be considered unethical. Such a change in the reporting framework is consistent with a preventative approach to ethical blindness in financial reporting that would deter management and accounting professionals from 'bending the rules.'

It is important to study financial reporting and auditing from an ethical perspective because recent research and recent events in the global financial crisis indicate unethical and misleading reporting to be a serious problem, and financial distress may be a key motivator for it (e.g., see Kothari and Lester 2012; EU Green paper 2010; Schrand and Zechman 2012). Dye et al. (2014) characterize the increasing conflict between management's self-interested reporting behavior and professional standards as an "arms race." Their conclusions further indicate the need for professional accounting standards to be improved in order to keep up with the increasingly complex economic environment and accountability relationships that are evolving. Developing basic principles regarding truthfulness of forecasts at the conceptual level is one way of doing so. This indicates the need for standards to consider how easily they can be abused as well as their success in reflecting economic substance. Traditionally, to deter abusive reporting and maintain fair presentation reporting, accounting standards have relied on verification of the appropriateness of the

[1] This is reflected by its ignoring of risk management principles in describing the acceptability of accounting estimates (IASB 2015b, paragraph BC5.8).

financial reporting by external independent auditors. But as the complexity of reporting and the sophistication of unethical reporting have increased, the auditors themselves need effective tools to keep up in the arms race. We thus propose that changes in standards be made that can further improve on ethical reporting.

We maintain that certain key elements in existing and proposed principles and standards of professional accountants are either too vague or allow too much latitude in certain judgments. These weaknesses, when combined with pressures of professional practice, increase the risks of unethical reporting. Specifically, we contend that the failure of the IASB (2015a, paragraph 4.13, and IASB 2015b, paragraphs BC4.12, BC4.13 and BC4.15) to draw a line at acceptable uncertainty about material differences in future outcomes may contribute to slippery slope type of fallacious reasoning in the development of accounting standards, and in their interpretation and implementation. We further argue that failing to draw clearer boundaries on what are acceptable levels of accounting uncertainty for estimates used in financial reporting also facilitates difficulties in verifying the estimates and causes potential conflicts with auditing standards. Detailed argumentation and evidence supporting our recommendations, and plan for implementing these recommendations, are provided in this paper.

The rest of the paper is organized as follows. The next section provides a review of the literature, with special attention on the wording of existing professional accounting standards that can facilitate ethical blindness in professional accounting. "Empirical Evidence on the Occurrence and Economic Consequences of Fraudulent Forecasts in Accounting Estimates" section provides descriptive evidence of the economic consequences of unethical forecasts in financial accounting. "Discussion of Implications" section provides a discussion of the implications of our findings, with emphasis on the IASB's (2015a) currently proposed changes in its conceptual framework of financial reporting. We find that adoption of IASB (2015a) in its current form will likely aggravate the problem of ethical blindness in financial reporting, as it would allow valuations with increased risk of material misstatement to be used in financial reports. "Summary and Conclusion" section provides a summary and our conclusions.

Literature Review and Analytical Framework

Ethics and Professional Concepts in Accounting: The Problem of Uncertainty

The predominant objective of the IASB in setting accounting standards is to bring as much relevant information as possible into the financial statements. A problem arises when the information cannot be measured with a high degree of certainty, creating a complex trade-off between providing information that would be relevant, except that its level of measurement uncertainty is too high for it to be reliable (IASB 2015b, BC2.22ff).

A better understanding of the sources of limitations of current professional accounting standards in this regard can be obtained by briefly reviewing some basic concepts. Financial statements prepared according to generally accepted accounting principles (GAAP) make use of factual, projected, and judgmental information. Each of these categories of information is associated with different types and ranges of measurement/estimation uncertainty, and each has its own unique types of misstatements that can arise (IFAC 2014b, ISA 450.A3). Currently, there are two major systems of GAAP for public companies: the Financial Accounting Standards Board (FASB) standards that are primarily used in the U.S.A., and International Financial Reporting Standards (IFRSs) used more broadly, and this issue applies to both of them. Misstatements associated with GAAP financial reporting have adverse effects on the users of the information. As stated in international auditing standards, "The degree of estimation uncertainty affects, in turn, the risks of material misstatement of accounting estimates, including their susceptibility to unintentional or intentional management bias." (IFAC 2014c, ISA 540.2).

Our focus here is the misstatements that arise from using projections and judgments in the forecasts of future events. Such projections and judgments are required for many accounting estimates, and thus pervade GAAP-based financial reporting in current practice. Consequently, the manipulation of forecasts within GAAP can lead to earnings manipulation and unethical or fraudulent reporting—a potential ethical blindness as far as current practice is concerned. At present, this problem is largely ignored by the accounting profession, capital market regulators, and the courts, and there is little guidance on what constitutes "lying" in the form of misreporting with a forecast in an accounting estimate. Recent research identifying difficulties that accounting estimates create for auditors can be found, e.g., in Griffith et al. (2015), Bratten et al. (2013), and Hurtt et al. (2013). Moreover, in its May 2015 *Exposure Draft on the Conceptual Framework for Financial Reporting* (IASB 2015a), the IASB concludes in its preliminary views on recognition that verifiability and measurement certainty are not necessary criteria for recognition of an estimated number in the financial statements under GAAP (IASB 2015a, paragraphs 6.61 and 5.17−5.19, respectively). These preliminary IASB views effectively mean that large misstatements associated with valuations based on forecasts of future cash flows could be acceptable under GAAP.

Estimation uncertainty in financial reporting is defined as "the susceptibility of an accounting estimate and related disclosures to an inherent lack of precision in its measurement" (IFAC 2014c, ISA 540.7c; IFAC 2014d, ISAE 3400). Misstatements arising from forecast error (arguably) are easier to rationalize because nobody can predict the future with certainty (e.g., see Makridakis et al. 2010). We argue that this ability to more easily rationalize misstatements in forecasts corresponds with the conditions for "escalation of deception situations" described in Fleming and Zyglidopoulos (2008, p. 839) because lies associated with forecasts are less likely to be detected. Fleming and Zyglidopoulos (2008) focus on "factual" lying, the easier type of lie to detect since it creates misstatements "about which there is no doubt" (IFAC 2014c, ISA 540.A118).

Lying about forecasts is harder to detect and such lying is therefore more likely to escalate throughout a reporting system. This is a real problem for financial reporting since accounting scholars going back to Ijiri and Jaedicke (1966) and Beaver (1991) have recognized that forecasts pervade GAAP. This pervasiveness has been increasing with the adoption of fair value accounting (Barth 2006). Recent evidence indicates that fraud tends to arise from fallacious thinking about what is acceptable in accounting estimates. "Thus, an optimistically biased initial misstatement, even if unintentional, [can] start the executive on a 'slippery slope' that leads to greater probability of misstatement and an SEC enforcement action." (Schrand and Zechman 2012, p. 312). A slippery slope fallacy is the paradox that arises from reasoning for consistency. The paradox arises when concepts have a degree of vagueness: if a concept applies to an object then it will apply if there is a small change in that object. The way to get around this fallacy is to create a barrier or set a threshold at some point on the slope. A primary example of a threshold in financial reporting is the materiality concept (IASB 2015a, paragraph 2.11). Auditors specify the significance of the misstatement in misleading a user as a material misstatement. Material misstatements are considered to undermine 'fair presentation' and so are to be avoided in financial reporting. The role of the external auditor is to add credibility to the financial statements by providing assurance that the probability of material misstatement is appropriately low.

Auditors are under increasing pressure from regulators to justify their quantitative assessment and use of materiality in their audit work, e.g., see Griffith et al. (2015), Bratten et al. (2013). However, when dealing with future cash flows in assessing accounting estimates, it is rarely certain that a specific cash flow stream will actually occur. Thus, it is the *uncertainty* associated with material differences between predicted and actual cash flows in valuations that should be a key factor in deciding on what should be reported in the financial statements. Specifically, if the risk of material misstatement is high enough ("significant"), then the auditor may need to consider an accounting adjustment. This importance of dealing with uncertainties is a common theme throughout the social sciences (Williams and Ravenscroft 2015, p. 779).

Given the increasing prominence of forecasting in GAAP, the accountants and managers who implement them should be guided by professional standards that regulate accountants' actions with respect to estimates which are difficult to validate. We refer to this aspect of professional accounting standards as 'ethical reporting.' Ethical reporting via GAAP financial statements extends the idea introduced in Libby and Thorne (2004) of expanding professional accounting ethics beyond codes of conduct, so as to also have ethical considerations incorporated into the objectives and principles of professional accounting standards. In particular, the conceptual framework can explicitly incorporate truthfulness about the economic substance of future cash flows in its objectives, as we propose here.

More explicit responsibilities for ethical reporting principles that attempt to provide incentives based on adhering to professional requirements can help address problematic financial reporting (e.g., see Davidson and Stevens (2013) for evidence on encouraging ethical behavior in a managerial context). Although research in the 1990s provided some evidence that standards by themselves may not have provided sufficient incentives (Cuccia et al. 1995; Hackenbrack and Nelson 1996), the post-Enron regulatory environment has created major incentives, through external monitoring of auditors, to adhere to standards more substantively in meeting user needs. A major problem now seems to be clarifying the substance of the standards and training auditors to effectively fulfill the objectives of the standards (PCAOB 2014; Griffith et al. 2015; Bratten et al. 2013; Hurtt et al. 2013). Such changes in standards should help reduce ethical blindness and make it easier to use accounting standards to prove accounting fraud in a court of law.

The ethical blindness that arises from professional accounting standards is to a large extent due to the fact that current accounting standards provide little guidance to auditors and others on acceptable levels of risk for forecasts, which are increasingly used in accounting valuation estimates. This limitation of current standards is rather surprising given the prominence it was given by a Commission on the accounting profession that was set up many decades ago in response to criticism of the profession from the U.S. Congress (Cohen 1978). Since then more recent research has identified continuing and increasing problems (e.g., Christensen et al. 2012; Griffith et al. 2015; Bratten et al. 2013; Hurtt et al. 2013).

These challenges can be related to the failure of current accounting standards to provide defined, operationally

translatable boundaries to determine where forecasts used in valuations cease to be admissible and start being inadmissible for use as the basis of point estimate measurements of value in financial statements. As a result of this failure to put bounds on risks in valuations, a number of related auditing challenges exist in terms of information acquisition and evaluation. As Griffith et al. (2015), Bratten et al. (2013), and Hurtt et al. (2013) all point out, auditors tend to limit their role to verification of processes and exclude the assessment of the valuations resulting from the estimation processes. We argue that this is a major contributor to ethical blindness in financial reporting.

Business Ethics Research Related to Ethically Problematic Accounting Issues

The quality of an accounting decision, such as deciding whether to book a discretionary accrual, is influenced by the interaction of corporate governance, ethical leadership, and moral intensity. Moral intensity is based on the Jones (1991) model which identifies six components: the magnitude of consequences, social consensus, probability of effect, temporal immediacy, proximity, and concentration of effect (ibid, p. 356). Here, we focus on the probability of effect and social consensus aspects of moral intensity within an audit/accounting standards context. We provide evidence on economic consequences as evidence of the moral intensity of unethical forecasting in financial reporting. Social consensus refers to the effect of others on our perceptions, particularly in deciding on what is good ethical behavior. For example, when there is a strong ethical environment in an organization, more ethical issues tend to be considered important or non-trivial. Thus, we would expect lower tolerance of lying about the future when there is higher social consensus in a professional accounting environment that high ethical financial reporting standards should be upheld.

With regard to the occurrence of misstatements, Dechow et al. (2011, pp. 19, 30) find that "soft assets" subject to assumptions and forecasts give more ability for earnings management "within GAAP." This can be accomplished through changes and adjustments in assumptions to influence short-term earnings. In general, overstatements of revenues, misstatements of expenses, and capitalizing costs are the most frequent types of misstatements (ibid., 76). Many misstatements are due to transactions-based earnings management (ibid., 43) such as front end loading sales from future quarters (a factual misstatement according to IFAC 2014c, ISA 540.A118) in conjunction with IFAC 2014b, ISA 450.A3), or misstating the allowance for doubtful debts or capitalizing expenses (judgmental misstatements according to IFAC 2014b, ISA 450.A3; and IFAC 2014c, ISA 540.A118, involving predictions of future outcomes).

Bayou et al. (2011) address the question of whether corporate codes are able to inhibit misstated financial accounting. They find that corporate codes may still result in misleading reporting. The reason for this is that the conceptual framework on which accounting standards rely use as their ultimate objective *decision usefulness* rather than *truth* in financial reporting. The problem with decision usefulness, according to Bayou et al., is that accounting needs to assess the timing, amount, and uncertainty of future cash flows in order to be decision useful. These assessments need to cohere with the FASB's or IASB's concepts of faithful representation of assets and liabilities. Moreover, recent accounting scandals involving deception and the auditors' obligation of assuring that financial reports are not misleading or fraudulent suggest that truth ought to be the stated objective of financial reporting, even though it may never be fully attainable. "To claim something is misleading presumes that some idea exists about what is a truthful versus an untruthful report." (Bayou et al. 2011, pp. 119–120).

Evidence of the problem with 'decision-usefulness'-based accounting standards is discussed in Young (2006). She shows that this notion was constructed by the standard setters themselves without any real input from actual financial statement users. It would thus appear that 'decision usefulness' is dependent on the more basic concept of reporting the 'truth' of future events, events such as future cash flows on which to base valuations, if the accounting information is to be useful for investor decision making. This is at the heart of our concern about the proposed changes to the IASB's conceptual framework. We discuss this concern in more detail below, in "Discussion of Implications" section.

Bayou et al. (2011) further note a deficiency of professional ethics codes due to them being based only on individual actions, i.e., what individuals do that is 'right or wrong.' Bayou et al. argue that, to be effective, professional ethics codes need to be set in situational contexts that arise in the profession. For example, threats to independence set out in the ethics codes for auditors are situational and give rise to reasonable expectations that professional auditors can avoid 'blindness' and implement appropriate safeguards (some examples of these are listed in the code, such as avoiding self-interest in, or advocacy on behalf of, a client), but there do not seem to be equivalent situational contexts for professional accountants to guide their ethical application of GAAP in preparing the information reported in financial statements.

A consequence of not focusing on truthfulness in financial reporting is illustrated by Johnson et al. (2012), who find that earnings management appears to be justified in the minds of managers if the consequences are considered good enough for their firm. This finding is broadly

consistent with Elias (2002) whose decision makers were also more narrowly focused on short-term gains for shareholders. These are further examples of ethical blindness.

Palazzo et al. (2012) focus on how rigid framing can affect moral behavior. Framing, i.e., the way in which a situation is presented, may influence people's judgments. Frames are essentially different perspectives on an issue, and Palazzo et al. study the effects of narrow framing and how frames can become fixed over time (e.g., economic rationality framing). As the frames become fixed, the risk of ethical blindness increases (ibid., p. 333):

> If a person is not aware of the moral dimension of a decision at stake, she cannot proceed to the next steps [of Rest's 1986 model], that is, evaluate the information from the normative viewpoint, establish moral intention, and make an ethical decision. (Palazzo et al. 2012, p. 324).

Palazzo et al. (2012, pp. 333–334) therefore recommend moral imagination through encouragement of multiple perspectives and flexible framing. Bazerman and Tenbrunsel (2011, pp. 81–83) indicate that ethical blindness may be systematic. In particular, their concept of "motivated ethical blindness" from behavioral ethics indicates that "people who have a vested interest in a situation have difficulty approaching the situation without bias, even when they view themselves as honest."

Behavioral ethics helps explain the gradual erosion of ethical standards that has been observed in many contexts, including professional sports, health care, protection of privacy, and, most pertinent to this paper, the potential for motivated ethical blindness in the accounting profession. For example, Moore et al. (2006, p. 10) find that "accounting professionals are often unaware of how morally compromised they have become by conflicts of interest." Moore et al. (2006, pp. 11–12) further argue that research results from social psychology about motivated reasoning and self-serving behavior suggest that professional accountants are particularly susceptible to ethical blindness:

> We suggest that the majority of professionals are unaware of the gradual accumulation of pressures on them to slant their conclusions—a process we characterize as moral seduction. Most professionals feel that their professional decisions are justified and that concerns about conflicts of interests are overblown by ignorant or demagogic outsiders who malign them unfairly. (ibid., p. 11).

Moore et al. note that well-documented judgmental biases such as selective perception, plausible deniability, escalation of commitment, inaccuracies in self-perception, and the effects of accountability all can contribute to motivated ethical blindness. This process at the individual level is complemented by a macro-level trend of accounting firms gaining control over government policies and regulations, as documented in Moore et al. (2006, pp. 20–22).

This paper is closely related to the problem of accountability, one of the many problems documented in Moore et al. (2006) and Bazerman and Tenbrunsel (2011, pp. 81–82). In particular, as opposed to being accountable to the public third-party users of financial reports,

> … The principal accountability pressure at work is justifying one's professional practices to powerful, opinionated audiences with well-defined views—namely, one's clients and one's superiors [but not investors or other third party users to which financial statements are primarily aimed [e.g., IASB 2015a, paragraph 1.2—our addition]. In a predecisional setting these accountability demands encourage strategic attitude shifting, which need not be conscious …, and the selective generation of reasons to justify going along with dominant-audience expectations …. In a postdecisional setting these types of accountability demands encourage post-decisional bolstering and selective generation of reasons to justify what one has already done … (Moore et al. 2006, p. 18).

What may facilitate this selective generation of ideas and memory are the professional accounting standards (Piercy 2011; Fanning et al. 2015). Moore et al. (2006, p. 20) note that moral seduction also has a macro-theoretical dimension that is explained by concepts of political theory. Essentially, the moral seduction at the individual level coalesces to influence the culture of accounting firms as a whole, and the profession as a whole, creating special interest groups of firms and their clients that have incentives to gain control over government policies and regulation. This indicates that macro-pressures could arise preventing the implementation of measures to address ethical blindness:

> GAAP is a 7700 page behemoth, packed with arbitrary cutoffs and wide range estimates, and riddled with loopholes so big that some accountants argue even Enron complied with them (The Economist 2014, p. 25).

Examples of Professional Guidance that May Facilitate Ethical Blindness

In this subsection, we analyze key concepts from professional standards to provide concrete examples of how they may facilitate ethical blindness in financial reporting in the context of an audit of financial statements. It is perhaps

best to start with long existing audit guidance that illustrates in the most fundamental way what is considered 'reasonable' reporting of an estimate involving future events. We assume that it is implicit in the term 'reasonable' that the reporting should also be ethical. For illustration, Exhibit 1 gives an excerpt from an audit guideline that was used in North American auditing standards for many years (current auditing standards set out similar requirements; however, they do not provide any specific numerical illustrations of the auditor's decision process, e.g., see PCAOB 2014, p. 41):

Exhibit 1

For example, the auditor's analysis of specific accounts receivable and recent trends in bad debt losses as a percent of sales may cause the auditor to conclude that the allowance for doubtful accounts should be between $130,000 and $160,000. If management's recorded estimate falls within that range, the auditor ordinarily would conclude that the recorded amount is reasonable, and no difference would be aggregated. If management's recorded estimate falls outside the auditor's range of acceptable amounts, *the difference between the recorded amount and the amount at the closest end of the auditor's range would be aggregated as a misstatement.* For example, if management has recorded $110,000 as the allowance, the amount by which the recorded estimate falls outside the range (i.e., $20,000) would be aggregated as a misstatement. *[Emphasis added]*

Source: CICA 2008, AuG 41, paragraph 30.

The exhibit illustrates the meaning of the term 'reasonable' as used in professional accounting standards. As clearly seen from the exhibit, the auditor develops a range of possible future values, and if the client's point estimate is within such a range, it is considered 'reasonable' and thus presumably ethical for financial reporting (also see IFAC 2014c, ISA 540.A93-.A94). The future event(s) in question in Exhibit 1 is the value of gross receivables that have been recorded at time of sale but will not be collected. This requires using an estimate of the receivables that will not be collected in the future, so that the reported valuation of the net receivables will reflect their true economic value.

Note the logic being used here: there is a misstatement if management's point estimate of uncollectible receivables is outside the auditor's range. And even the amount of misstatement is specified as the distance between management's point estimate and the nearest edge of the auditor's range. If management's estimate falls within the range set by the auditor, then management's estimate is considered reasonable and there is no misstatement in the estimate, and that is why it is ethical by this reasoning. Because of the crucial role that the auditor's range plays in deciding on the reasonableness of an estimate, it is at times referred to as the 'reasonable range' because all estimates within the range are considered reasonable.

The logic is straightforward, but can it lead to an ethical blindness when auditing management's accounting estimates? We think the answer is 'yes': the blindness arises if the reasonable range is too large. Why does this reasoning create an ethical blindness? Because the larger the range, the more management estimates are acceptable since they are considered to not have a misstatement. And with very large ranges virtually any management estimate of uncollectible amounts can be made acceptable. This is a good example of escalation as noted in Moore et al. (2006), Fleming and Zyglidopoulos (2008), Piercy (2011), and Fanning et al. (2015), especially if the auditor knows the client's estimate before developing his/her range (PCAOB 2014, pp. 37–39).

As we discuss shortly, estimates associated with large ranges means there is great uncertainty and potentially high risk associated with the estimate. Current research indicates this problem may be further aggravated by the potential overconfidence of auditors, and in the extreme by auditors simply basing their own evaluation on following up management's process of developing the estimate, not even independently developing their own estimate or range (Griffith et al. 2015; Bratten et al. 2013; Hurtt et al. 2013).

For guidance, the accounting profession could refer to the broader literature in social psychology on challenges in developing range estimates (Hoffrage 2016). These challenges can all contribute to ethical blindness in financial reporting. The challenges are evident in professional accounting standards where the use of ranges is poorly developed. The first problem is the issue of the degree of calibration of a range: does the range accurately capture the predicted proportion of future possible outcomes? For a predictive range to be useful, any forecaster (manager, auditor, etc.) should attach a nominal probability to it, that is, the forecaster should assess the probability with which the future event will fall into the given range. This could be considered the "nominal level of uncertainty for the range." Of course, there is typically just ONE such future event for any one range, so it will turn out to either fall into the range or not. Such a forecaster, however, may make many range forecasts. For a well-calibrated forecaster, the *actual* proportion of future events falling into their respective ranges, each, say, of 95 % *nominal* level, should be 95 %. This indicates that auditors should insist on a nominal level being attached to any range, consistent with audit objectives. Only in such a case, there is a hope to check if there is good calibration. This is why sampling or other statistical models are frequently used to help develop calibrated ranges of estimates. The literature on the

psychology of decision making uses this type of reasoning in evaluating judgmental forecasts of future events (e.g., Glaser et al. 2013; Ben-David et al. 2013).

Since auditors are supposed to provide high assurance for estimates, this suggests that an auditor-prepared range should have a *stated* confidence or credibility between 90 and 100 %. The use of the term 'reasonable' range seems to suggest this, but there is little in auditing standards specifying that this needs to be the case in an audit context. Of course, if the range is large enough, it can capture any value, as discussed earlier.

However, large ranges can create another problem in the form of the precision of a forecast—is the well-calibrated 95 % range too wide to be of use to the auditor in verifying an accounting estimate? Excessively wide ranges are not very useful in learning the true value or outcome. Very large ranges reflect high uncertainty, under-confidence, or lack of knowledge about an estimate. When a range for an estimate is very large, the accountant/auditor is not in a position to say they know much about the estimate.

Here the concept of materiality plays a key role. A 95 % credibility range that is, say, ten materialities in size is unacceptable since it will result in significant risk for any estimate, whereas a 95 % range smaller than, say, one materiality in size would be acceptable. Auditing standards provide some guidance consistent on this (e.g., IFAC 2014c, ISA 540.A94), but the standards also assume that auditors can somehow reduce the range for most accounting estimates. This is highly unlikely for some ranges as we illustrate with current global oil prices below. Auditors thus also need to rely on the accounting standards for suitable criteria in the form of acceptable financial reporting frameworks (IFAC 2014e, ISA 210).

Ben-David et al. (2013, p. 1549) define miscalibration as "excessive confidence about having accurate information." A particularly relevant type of miscalibration for auditors is the issue of management overconfidence bias in a range: this bias develops when the manager specifies a percentage of future outcomes that should be captured by a range when the actual number is less. For example, a manager specifies a 95 % credibility for a range, yet the actual percentage that the true amount will fall within the range is only, say, 50 %. Overconfidence can result in a range that is too small for the specified credibility that is desired (overprecision). Ben-David et al. (2013) find that overconfidence in the form of overprecision is common among senior executives, and affects their investment decision making. Hoffrage (2016) reviews the literature on overconfidence and managerial situations in which it is likely to occur. Basically to be successful, senior managers need to be confident, and this suggests that the incidence of overconfidence among senior managers may be higher than among the rest of the population. This has implications for auditors who may anchor on the overconfident estimates and thus need to be sensitized to this possibility, and to be more skeptical of management as a source of evidence on accounting estimates.

Finally, there is the issue of the auditor's (or management's) awareness of the above effects. If neither the auditor nor management is aware of these effects, then we cannot say that a lie is taking place. But whether the auditor and management should be aware is precisely our point: the auditor (and management) should be aware, and this obligation should be captured in training and in the accounting and auditing standards. It is part of the new business ethics movement of preventing unethical business actions, such as misleading investors about the accuracy and uncertainty of accounting estimates, as noted in Bishop (2013).

The auditor's social role is to increase the credibility of financial reporting. For financial reporting that includes increasingly complex estimates involving future events, this requires that the auditor remains competent in evaluating such estimates; otherwise the auditor should not accept the engagement. Thus, an ethical auditor in evaluating the accounting should be aware of expanded responsibilities for the increased complexity in accounting estimates. A key way to achieve this is through the use of improved standards that reflect these requirements.

It is increasingly being recognized in research and among some standard setters that auditor responsibilities should be increased (e.g., PCAOB 2014). But how? We propose detailed steps below. One important way is to make auditors and other professional accountants sensitized to the risks of working with ranges and ways of dealing with them in ethical reporting. The forecasting with ranges issues discussed above, along with many others, have been incorporated by intelligence agencies to train individuals to become better forecasters on a large number of sociopolitical topics (Tetlock and Gardner 2015). Similar training could help financial statement preparers develop better accounting estimates and auditors become better evaluators of those estimates.

Under current standards, most auditors view ranges through the paradigm of confidence intervals in statistical sampling. In a sampling context, auditors can control the size of a confidence interval (range). Specifically, the range can be reduced through more testing—this is the foundation of much auditing logic. This is possible because the auditor controls the amount of testing. Auditing logic for accounting estimates deals primarily with this setting because the standards state that a range is normally reducible to the size of materiality (IFAC 2014c, ISA 540.A94). However, this is not necessarily true for the increasingly many accounting estimates relying on future event outcomes (e.g., level 3 valuations of fair value accounting).

For example, consider accounting estimates greatly influenced by volatility in commodity prices such as global oil prices in 2014–2016. Neither managers nor auditors have much control over global oil prices. Yet the future direction of these oil prices can greatly influence the valuations of investments by the oil industry, not to mention the potential loan losses to the financial institutions that have lent to this industry. The best that can be done is to predict the range of future oil prices and to incorporate this into the analysis. But what is a 90 % credible range of oil prices over the next year? $30–$50? or $10–$150? Thus, we can foresee a potentially huge impact on accounting estimates and related impairment tests just from the uncertainty due to oil prices. But it is unethical to reduce such ranges arbitrarily because then they would no longer represent the truth about the degree of uncertainty of oil prices. There should be sufficient appropriate evidence to support such range disclosures and the significance of the risks that accompany the related accounting estimates. This is indicated by the proposed measurement uncertainty criteria of IASB (2015a, paragraphs 5.20–5.21) and the verifiability criteria (ibid. paragraph 2.29). If the estimate is not verifiable then the IASB (ibid, paragraph 6.61) indicates that disclosures may be needed to enable users to understand the limitations of the estimate. However, IFAC (2011) indicates that such disclosures should be auditable. Ultimately, this means that at minimum the disclosed ranges need to be verifiably well calibrated.

The best that can be done is that accountants, and auditors, use accounting that most appropriately reflects the *uncertainties* in the accounting estimates. This originates as an accounting issue, and also leads to an auditing issue. For this type of situation, appropriate application of the range concept, calibration, and awareness are important issues, and, along with accounting principles that integrate the materiality concept, can all help guide non-misleading, ethical reporting under this uncertainty. We outline later in this paper a way of incorporating range concepts, calibration, awareness, and materiality into the accounting regulation and particularly the conceptual framework, so that more ethical reporting is facilitated.

Analytical Framework: Fraudulent Forecasts as a Consequence of Ethical Blindness in Accounting Standards

Based on the discussion above, a distinction can be made between fraudulent facts and fraudulent forecasts, the latter of which we assert is more particularly enabled via ethical blindness in financial accounting standards. A *fraudulent fact* is an intentional factual misstatement in reporting; it arises from a misstatement of historic factual data that an auditor could have detected through audit evidence gathering procedures. A *fraudulent forecast* is a fraudulent misstatement due to unreasonable accounting assumptions; it arises when accounting measures are based on incorrect forecasts that are not verifiable by factual audit evidence gathering procedures. We contend that *auditing standards* are predominantly concerned with deterring (and ensuring the discovery of) such fraudulent facts, but that it is primarily a duty of *accounting standards* to deter fraudulent forecasts by setting acceptable levels of risk associated with such forecasts in the first place (otherwise auditors do not have a necessary basis for determining the acceptability of forecasts for fair presentation, as opposed to minimum compliance with standards).

Generally, accepted auditing standards make it clear that acceptability of an accounting standard is part of the suitability of criteria that the auditor must consider (IFAC 2014e, ISA 210.A2). The auditing standards also make it clear that the accounting standard setters must consider the acceptability of the reporting framework on behalf of auditors when setting accounting standards (IFAC 2014e, ISA 210, Appendix 2, paragraph 2). Other evidence for this distinction in standards is indirect—it must be inferred from various specific rules. In recent research, this distinction is referred to as the distinction between verification and valuation of accounting estimates (Griffith et al. 2015; Bratten et al. 2013; Hurtt et al. 2013).

Empirical Evidence on the Occurrence and Economic Consequences of Fraudulent Forecasts in Accounting Estimates

Research Questions

Our fundamental distinction between facts and forecasts will allow us to classify fraud cases as primarily related to either auditing standards (fraudulent facts) or accounting standards (fraudulent forecasts).[2] Such a classification may be informative to auditing and accounting standard setters for clarifying the role of standards in deterring unethical and potentially fraudulent financial reporting.

Our analysis of fraud cases rests upon the key assumption that unreasonable or unacceptably risky—hence potentially fraudulent—forecasts posit a significant and increasingly important threat to ethical financial reporting. The next subsection provides empirical evidence on this assumption. Using a dataset of the main allegations of

[2] Some frauds indicate a failure of both standards. Auditing standards have only recently taken on more responsibility for detecting fraud, but primarily of the factual misstatement type. Note also that valuation misstatements can be due to factual inaccuracies (misrecording of cash) or misstatements arising from forecasts (erroneous future cash flow predictions).

financial statement frauds in U.S. public companies in the decade of 1995–2004 (Dyck et al. 2010), the occurrence and economic consequences of financial statement fraud that involved the violation of the principle of ethical forecasts in accounting estimates ('fraudulent forecasts') is determined and related to the occurrence and economic consequences of the more 'traditional' type of financial statement fraud based on intentional misstatements of the economic facts of the entity ('fraudulent facts'). Our empirical evidence on the violation of the principle of ethical forecasts in accounting estimates further supports the need for principles to control the risk of forecast errors in financial reporting as part of the ethical argumentation supporting the fair presentation of the financial statements, as opposed to minimum compliance reporting (i.e., technical conformity with GAAP) as was argued at the Enron trial by accounting expert witnesses (Craig et al. 2014, p. 204).

In light of this distinction, our first objective is thus to provide evidence on the relative frequency of fraudulent forecasts (vs. fraudulent facts):

> RQ1: What proportion of financial reporting frauds in the dataset is primarily due to fraudulent forecasts?

We consider this proportion negligible if it is ≤ 0.05 and substantial if it is ≥ 0.25. It is of interest if this proportion is larger than 0.5.

Our second objective is to provide evidence on the economic damages of fraudulent forecasts in order to approximate the costs of fraudulent forecasts to the economy. We formulate this research question in two parts:

> RQ2a: What is the median economic damage for cases with fraudulent forecasts?
> RQ2b: Is the median economic damage higher for cases with fraudulent forecasts than cases with fraudulent facts?

We consider the median in *RQ2a* negligible if it is US$ 3 million or less.[3]

The next section presents our empirical evidence on the extent to which fraudulent forecasts are an important source of fraud in financial reporting.

Data and Method of Analysis

We use (with permission) an innovative dataset developed by Dyck et al. (2010), who studied which external control mechanisms are most effective in detecting corporate fraud. The dataset includes descriptions of the fraud case facts and measures of the economic consequences of fraud in the securities markets. Economic consequences are limited to the measurable economic costs. The dataset is a fairly comprehensive listing of the major fraud allegations involving large public companies in the period 1995–2004 that were filed under U.S. Federal Securities Acts of 1933 and 1934. Compared to other datasets used in accounting research, this dataset provides a more comprehensive listing of fraudulent reporting and a more complete accounting of the economic costs of the frauds. The vast majority of the frauds involved financial reporting; many of these frauds were included in the SEC's enforcement actions, but some were not. The economic costs are proxied by (i) settlements with shareholders and other aggrieved parties, and (ii) SEC fines against management, auditors, and the firms.[4]

We add to the analysis a finer partitioning of the dataset based on whether the fraud is due to fraudulent facts or due to fraudulent forecasts. The original dataset of Dyck et al. (2010) contains 224 cases, of which 174 involved fraudulent financial reporting. Hence, our analyses in this study are based on these 174 cases. We use the following coding categories for each case:

(a) *Fraudulent fact(s)* clearly dominate(s) as the basis of the fraudulent reporting,
(b) *Fraudulent forecast(s)* clearly dominate(s) as the basis of the fraudulent reporting,
(c) Some *combination of fraudulent facts and fraudulent forecasts* where neither clearly dominates as the basis of the fraudulent reporting, and
(d) Insufficient information is available to classify the case.

To address potential concerns about the subjectivity of classifying the cause of each case, we used the following procedure. Three authors were involved in the classifications in order to ensure consistent coding. Typical indicators of a fraudulent fact were words such as 'fictitious,' 'non-existent,' 'cutoff errors,' or 'channel stuffing.' Typical indicators of a fraudulent forecast were words such as 'unreasonable assumption' or 'unrealistic forecast.' Two authors independently coded all 174 cases, resulting in a considerable degree of consistency (72.3 % of the cases).[5] Several of the differences related to whether coding categories (c) (combination of fraudulent facts and fraudulent forecasts) or (d) (non-classifiable case) were appropriate.

[3] We use this cutoff value in correspondence to Dyck et al. (2010), who use this value as the settlement cutoff value that divides frivolous suits from meritorious ones. Even though this cutoff value may appear high for representing a "negligible" economic damage, it involves a conservative test of *RQ2a*.

[4] A limitation of this approach is that it ignores whistleblower costs (see Dyck et al. 2010, pp. 2213–2253) and reputational costs imposed by the market (Karpoff et al. 2008). However, this involves a more conservative test of our research question *RQ2a*.

[5] Both coders looked at the cases in a different order to reduce the possibility that the order of reading the cases affected the assessments.

The two coders and the third author then reviewed and discussed these differences, and resolved most of them. Cases for which ambiguity still remained were coded (a) (fraudulent facts), (c) (combination), or (d) (non-classifiable), depending on what appeared most appropriate, but never (b) (fraudulent forecasts). After completing the coding process, high agreement on the correct classification was achieved (99.4 % of the cases).

To shed light on our research questions, we model the 174 cases as a simple random sample. To answer *RQ1*, we obtain a confidence interval for the proportion of fraud cases that are due to fraudulent forecasts. We examine the two parts of our second research question in the following way: To answer *RQ2a*, we compare the median economic damage of cases with fraudulent forecasts with our negligibility threshold, that is, US$ 3 million. To answer *RQ2b*, we compare the distributions of economic damage for cases with fraudulent forecasts and with fraudulent facts.

Results

Descriptive results of our analyses of the 174 cases are summarized in Tables 1 and 2. Table 1 contains the classification of misstatements into the categories 'fraudulent facts,' 'fraudulent forecasts,' 'combination of fraudulent facts and fraudulent forecasts,' and 'non-classifiable cases' on a per-year basis. These results are visualized in Fig. 1. Table 2 lists the total economic damages of the cases for the four classes on a per-year basis and also shows the mean damages per case for each class across the entire time range. From the tables, it is immediately evident that fraudulent forecasts are a substantial category, whether measured as a percentage of cases (39.7 % of all cases, see Table 1 for details) or a percentage of total economic costs (44.2 % of all cases, see Table 2 for details).

Figure 1 shows the development of the proportions of fraud cases based on fraudulent facts and fraudulent forecasts from 1996 to 2004. Both proportions follow a roughly stable (that is, random) pattern; they fluctuate randomly around approximately equal means. Among the $n = 174$ cases in the sample, the sample proportion of fraudulent forecasts is 0.483 with an estimated standard error of 0.038. A 99 % confidence interval for the proportion of fraudulent forecasts is 0.483 ± 0.096. It is thus highly unlikely that this proportion is less than 0.387, and we cannot rule out that it equals 0.50. We therefore conclude that fraudulent forecasts are a substantial source of fraud in financial reporting.

Figure 2 shows histograms of the economic damage from fraud cases for both fraudulent facts and fraudulent forecasts. A log scale is used on account of the very considerable skewness of the distributions. Because of this skewness, the central limit theorem does not apply, and it is not possible to derive the usual confidence intervals for means and differences in means. Nevertheless, it is clear from Fig. 2 that the two distributions are very similar, and we cannot rule out that the medians of economic damage for cases with fraudulent forecasts and fraudulent facts are equal.

Table 2 shows that the total economic damage from fraudulent facts in our sample exceeds that from fraudulent forecasts, though not by much (US$ 27.3 billion vs. US$ 23.2 billion). However, due to the somewhat smaller number of cases that involved fraudulent forecasts, the sample mean for economic damage is slightly higher for fraudulent forecast misstatements than for fraudulent factual misstatements (US$ 336 million vs. US$ 325 million). On account of the very considerable skewness of the two distributions, we also obtained the sample median for economic damage which is somewhat lower for fraudulent forecasts than for fraudulent facts (US$ 20 million vs. US$ 35 million), though both values are substantial. Finally, the first and third quartiles for economic damage are US$ 5 million and US$ 143 million for fraudulent forecasts and US$ 10 million and US$ 108 million for fraudulent facts. All these statistics underline that the economic damage from the two types of fraudulent misstatement are substantial and that there is little difference in the two distributions of economic damage.

These results likely understate the extent of unethical reporting with forecasts because, as the Nortel judgment quoted earlier indicates, it is very difficult under existing accounting standards to find management guilty of making fraudulent accounting judgments (as opposed to outright lies about facts, e.g., McClearn 2012). Moreover, these results are based on identified cases, so that the question arises what the (real) base rate for fraudulent reporting is in the population of all financial reports (which likely exceeds the rate of identified cases). Several survey results provide an indication, even though we cannot be sure how representative they are. However, the numerous survey results are broadly consistent. For example, a 2014 global survey of 5128 companies in 99 countries by PwC, a global accounting firm, indicates that 37 % of companies experienced some sort of fraud over the preceding two-year period. The range over the last 15 years has been 30–45 % of companies surveyed (PwC 2014).

Another study by the Association of Certified Fraud Examiners (ACFE 2014) estimates total fraud losses of nearly $3.7 *trillion* in 2013. About 9 % of cases involve financial statement fraud and these frauds involve the highest losses (median loss $1 million). Corruption schemes involving kickbacks to local officials are in the middle with 37 % frequency, but median loss of $200,000. Misappropriation of assets, frequently by employees, are the most common type of fraud (87 % rate), but the lowest median loss ($137,000).

Table 1 Number and proportions of fraud cases by misstatement class and year

Year	Fraudulent facts clearly dominant	Fraudulent forecasts clearly dominant	combination of fraudulent facts and fraudulent forecasts	Non-classifiable cases	Overall
	Number of cases (percent in this class %)	Number of cases (percent in this class %)	Number of cases (percent in this class %)	Number of cases (percent in this class %)	Number of cases (percent in this class %)
1995	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.6)
1996	3 (42.9)	4 (57.1)	0 (0.0)	0 (0.0)	7 (4.0)
1997	7 (58.3)	3 (25.0)	2 (16.7)	0 (0.0)	12 (6.9)
1998	11 (57.9)	6 (31.6)	1 (5.3)	1 (5.3)	19 (10.9)
1999	8 (34.8)	11 (47.8)	4 (17.4)	0 (0.0)	23 (13.2)
2000	7 (43.8)	7 (43.8)	2 (12.5)	0 (0.0)	16 (9.2)
2001	14 (56.0)	7 (28.0)	4 (16.0)	0 (0.0)	25 (14.4)
2002	23 (50.0)	18 (39.1)	5 (10.9)	0 (0.0)	46 (26.4)
2003	7 (46.7)	7 (46.7)	1 (6.7)	0 (0.0)	15 (8.6)
2004	3 (30.0)	6 (60.0)	1 (10.0)	0 (0.0)	10 (5.7)
Overall	84 (48.3)	69 (39.7)	20 (11.5)	1 (0.6)	174 (100)

Number and properties of fraud cases by misstatement class and year

Table 2 Economic damages by misstatement class and year

Year	Fraudulent facts clearly dominant	Fraudulent forecasts clearly dominant	Combination of fraudulent facts and fraudulent forecasts	Non-classifiable cases	Overall
	Total damages (percent in this cases %)	Total damages (percent in this cases %)	Total damages (percent in this cases %)	Total damages (percent in this cases %)	Total damages (percent in this cases %)
1995	3.00 (100.0)	– (0.0)	– (0.0)	– (0.0)	3.00 (0.0)
1996	143.50 (41.0)	206.50 (59.0)	– (0.0)	– (0.0)	350.00 (0.7)
1997	621.90 (59.6)	407.50 (39.1)	13.20 (1.3)	– (0.0)	1024.60 (2.0)
1998	10,589.65 (93.1)	670.68 (5.9)	47.50 (0.4)	61.00 (0.5)	11,370.83 (21.7)
1999	673.45 (21.4)	1809.00 (57.5)	665.90 (21.2)	– (0.0)	3148.35 (6.0)
2000	736.15 (60.7)	150.20 (12.4)	326.75 (26.9)	– (0.0)	1213.10 (2.3)
2001	1616.63 (17.7)	7050.40 (82.0)	34.55 (0.4)	– (0.0)	9156.58 (17.4)
2002	10,580.90 (53.3)	9012.90 (45.4)	245.70 (1.2)	– (0.0)	19,839.50 (37.8)
2003	670.00 (34.5)	644.15 (33.2)	626.00 (32.3)	– (0.0)	1940.15 (3.7)
2004	1649.30 (37.2)	2775.50 (62.6)	10.00 (0.2)	– (0.0)	4434.80 (8.4)
Overall	27,284.48 (52.0)	23,181.83 (44.2)	1971.60 (308)	61.00 (0.1)	52,498.72 (100.0)
	Mean damage per case (number of cases) [standard deviation]	Mean damage per case (number of cases) [standard deviation]	Mean damage per case (number of cases) [standard deviation]	Mean damage per case (number of cases) [standard deviation]	Mean damage per case (number of cases) [standard deviation]
Overall	324.82 (84) [1180.05]	335.97 (69) [1231.55]	98.58 (20) [169.56]	61.00 (1) [0.00]	301.72 (174) [1128.38]

A 2014 global survey by another accounting firm, E&Y, finds that 5 % of chief executives agree with the statement that "misleading financial performance is justified to survive an economic downturn," and the report concludes with the following: "These findings suggest potential risk areas that need focus because they relate to matters that are less objective and present an opportunity for more subjective judgment." (E&Y 2014).

Taken together, our findings suggest that fraudulent forecasting is as important as more traditional factual types of fraud, measured both in percentage of occurrence and economic damage. This is consistent with recent findings by regulators, e.g., see PCAOB (2014, p. 12) and Griffith et al. (2015). A prime form of deterrence of such unethical reporting behaviors is appropriate standards that focus on such deterrence. This is the focus of the discussion in the next section.

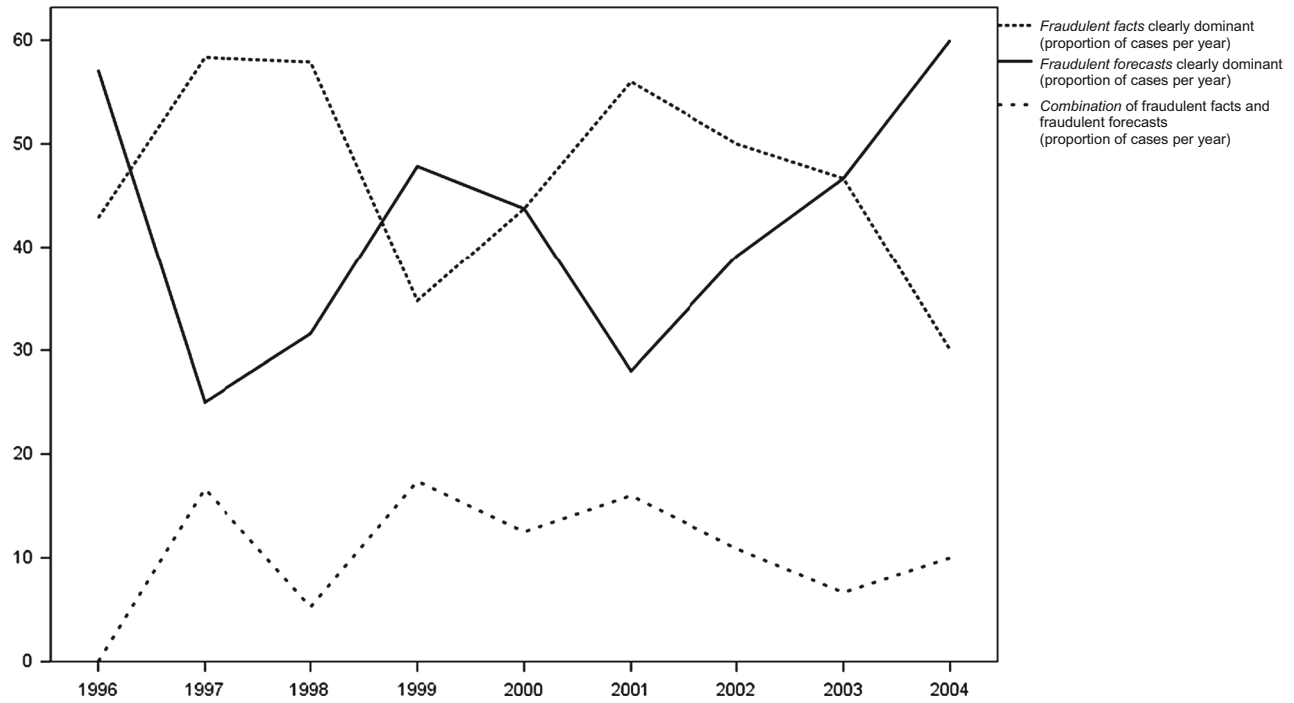

Fig. 1 Proportions of fraud cases by misstatement class and year 1995 was omitted since there was only one observation for that year

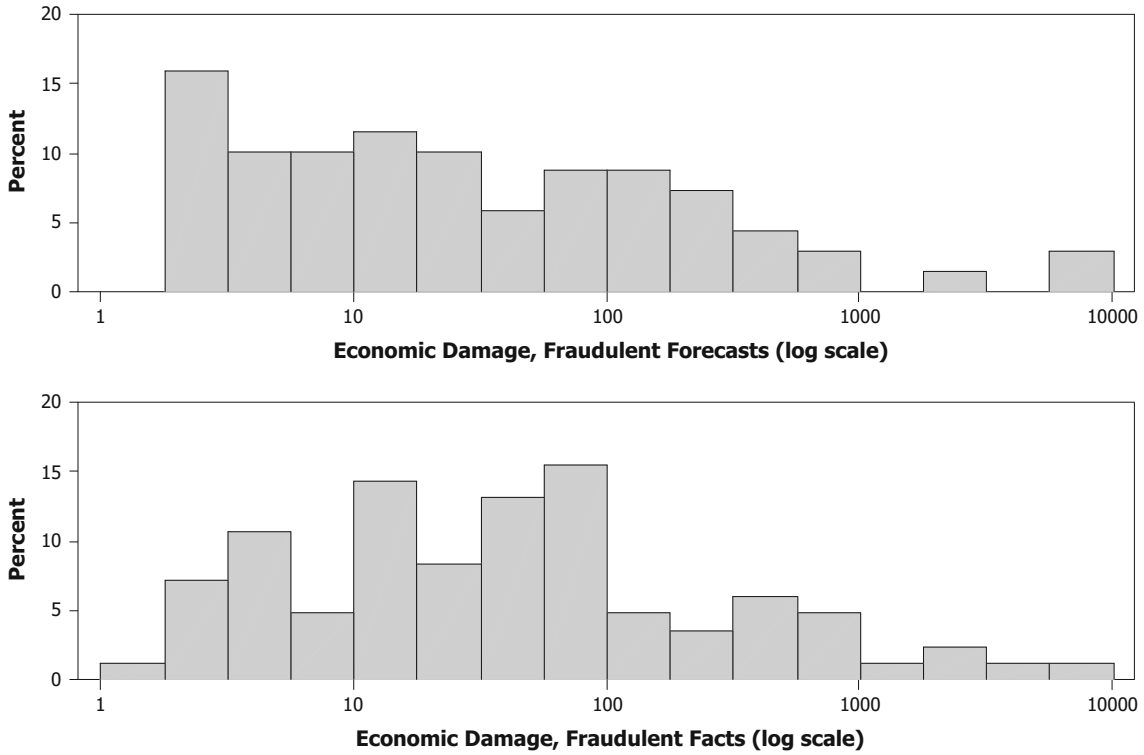

Fig. 2 Histograms of economic damages by misstatement class

Discussion of Implications

Problems with Recently Proposed Changes in Accounting Standards

The proposed new conceptual framework of financial reporting is supposed to provide the most fundamental goals, principles, and concepts for financial statements (IASB 2015a, paragraph IN 1). The proposed changes include dropping the role of uncertainty from the definitions of the fundamental concepts of assets and liabilities (ibid., paragraphs 4.13–4.16, 5.15–5.23). This, combined with the IASB's views on recognition criteria and verifiability which put no limits on estimation uncertainty and no required verifiability criteria, essentially means there is high risk of untruthful estimates being allowed because they may be (considered) relevant (ibid., paragraphs 5.15–5.23, 6.61). We feel this is a mistake from an ethical viewpoint because such a framework will tend to increase ethical blindness and worsen the problems in financial reporting by not putting any restrictions on the level of uncertainty allowed in measuring the value of an asset or liability. As noted earlier, this problematic reporting arose from a decision relevance viewpoint without making it clear whose relevance is most important. If relevance arises by pitting one set of users against others, then truthfulness should be the more fundamental criterion.

While acknowledging that sometimes assets and liabilities with high uncertainties should not be recorded, but not specifying when, the ambiguity created opens a potential minefield of unethical reporting that would be allowed by the conceptual framework. That is, estimation uncertainty can potentially grow to 100 %—a guaranteed material misstatement in that the asset is guaranteed not to realize by a material amount the estimated value that is reported in the financial statements. In taking this position the IASB (2015b, paragraph BC5.45) believes uncertainties of estimates should not be dealt with at the conceptual level, but rather by standards dealing with specific issues. Unfortunately, they are admittedly using as a precedent a recently revised detailed standard on financial instruments that ignores certain types of forecast errors (IASB 2015b, paragraph BC5.8, BC5.38–BC5.40). In other words, rather than revising a recently changed standard, the IASB appears to be revising basic principles in the conceptual framework in order to avoid inconsistency with a flawed revised standard. The IASB justifies this on the grounds that risks and uncertainties are only indicators of relevance but not conclusive evidence (IASB 2015b, paragraphs BC5.21–BC5.47). However, this rather vague IASB reasoning may open up a Pandora's box of unethical accounting practices with respect to accounting for future events.

We believe there are at least two other problems with the IASB approach. First, the IASB does not explain how the goal of financial reporting to meet user decision needs is justified by incorporating all levels of uncertainty as potentially important, even the most unlikely, but possible, events. Why would these be more relevant than the more likely future events? The IASB does not explain how less certain events could be more relevant than more certain events; note this gets back to truthfulness about what is likely to happen in the future. This is important because the IASB delegates to the more detailed standards explanation for the degree of estimation uncertainty that would be acceptable for financial reporting purposes.

To add to this problem of delegation to detailed standards of the policy on estimation uncertainty, there is the difficulty brought on by the fact it is unlikely that all the detailed standards will cover all the practical applications. IASB (2015a, paragraph IN 1 (b)) recognizes that a major purpose of having a conceptual framework is to cover any gaps in the more detailed standards. So, if there is a gap in the coverage of individual standards, having limits on estimation uncertainty incorporated into the basic concept of an asset could help prevent cases of clearly unacceptable reporting. For example, Enron stretched the interpretation of existing detailed accounting rules to new situations of financial engineering to the point they no longer met the objectives of financial reporting of meeting user needs. They were no longer ethical, despite being arguably GAAP compliant, because they amounted to lying to the users and this was the basis of the prosecution's case against Enron executives (Craig et al. 2014, pp. 203–204).

We recommend that the concept and principles in the framework incorporate some acceptable level of forecast inaccuracies that is tolerable to users of financial statements so as to exclude estimates that are unethical (which would be the case when they do not meet a minimum acceptable degree of truthfulness based on all the available evidence). We thus find that there is a need to go in the opposite direction from the IASB (2015a) Exposure Draft. Instead of eliminating the use of uncertainty terms such as 'probable' from the conceptual framework, we propose that the acceptability of the degree of uncertainty in an accounting representation of an asset should be more explicitly specified in the accounting conceptual recognition criteria of the framework, rather than being de-emphasized.

To implement these recommendations, we propose the following steps:

- Specifically stating in the measurement concepts that *maximum* degree of acceptable uncertainty should be set to the same level that is used in a court of law to

settle commercial disputes—the party that has the balance of probabilities in support for its position wins the dispute legally. Of course, the acceptable level will likely vary depending on the account at issue—an uncertainty of 50 % for cash would be way too high, whereas a 50 % uncertainty for goodwill would be more acceptable. This relates to the fundamental concept of *accounting risk*, and is further discussed in the next subsection;
- Adoption of range and calibration techniques from the forecasting and social science literatures by accountants and auditors; and
- Incorporating explicit guidance to create awareness of the ethical implications of including uncertain measurements in financial reports. This guidance should include appropriate and auditable note disclosures of the risks and ranges associated with the estimates and the need to have a verifiable estimation process. For example, recent regulator investigations indicate that many forecasts in estimates are too subjective and auditors need to be more skeptical (CPAB 2015).

These steps can be characterized as more technical aspects of operationalizing the acceptable accounting risk concept, as explained next.

Enhancing the Ethicality of Professional Accounting Standards by Limiting Accounting Risk

Under the proposals of the IASB (2015a) Exposure Draft, the most important characteristic that influences the reliability of accounting information is *faithful representation*. Faithful representation is described as the state of presenting the economic substance of a phenomenon rather than its legal form (IASB 2015a, paragraph 2.14). It is further defined by three characteristics: completeness, neutrality, and freedom from error (IASB 2015a, paragraphs 2.15–2.19). What is freedom from error of a future event? We suggest it means predicting exactly what happens in the future to particular economic phenomena such as future cash flows. In other words, recording a future cash flow that is actually realized would make the accounting for it a faithful representation (appropriately discounted, etc.).

The IASB notes that its objective is to maximize freedom from error of an accounting measurement (i.e., minimize the error of the accounting estimate), not necessarily to achieve it precisely. This objective is equivalent to minimizing error with respect to future events. It is evident from emphasis in IASB (2015a, paragraphs 5.9–5.23) and IASB (2015b, paragraphs BC5.21–BC5.47, BC6.15–BC6.66) that future events such as future cash flows are a pervasive phenomenon of importance in financial reporting. We thus posit that a faithful representation of a future event or future outcome is what actually occurs or is realized in the future, consistent with our definition of good calibration defined earlier. Similar criteria of forecast accuracy are used in Ben-David et al. (2013) and Glaser et al. (2013). An indication of the degree of faithful representation can be provided by note disclosures through the precision of verifiably calibrated ranges as discussed earlier. Proposals for increasing the verifiability of estimation processes have been made by, e.g., Lundholm (1999) and Glover et al. (2005).

To help resolve this important problem of dealing with risks from future events in accounting, we propose to define the concept of *accounting risk* as the probability of a material difference between what is estimated as a valuation for reporting purposes that is based on predictions of future cash flows and the value that is actually realized in the future. The difference between what is estimated and what is realized is a type of judgmental misstatement as defined in international auditing standards (IFAC 2014c, ISA 540.A118; IFAC 2014b, ISA 450.A3). Accounting risk is thus a specific class of estimation uncertainties.

The accounting risk relates to the truthfulness of accounting estimates in the following way: the degree of truthfulness of an estimate with respect to the future equals one minus the accounting risk of reporting that estimate. Thus, the lower the accounting risk of a specific numerical estimate, then the more reliable the estimated number is with respect to being truthful about the future. The lower the accounting risk is, the less is the estimation uncertainty.

As a practical matter, auditors, managers, and standard setters need to consider legal burdens of proof to successfully defend themselves from lawsuits alleging improper reporting. This suggests that maximum accounting risk should not exceed .5 for any estimate shown on the face of the financial statements, so that a defence could be based on the balance of probability criterion and truthful reporting. Supplemental information should also be provided in the notes to the financial statements indicating the degree of accounting risk in various estimates, e.g., by disclosing a verifiably calibrated range associated with particularly risky accounting estimates; otherwise the estimate should not be considered auditable as indicated in IFAC (2011). The existing classification of accounts is already based to a significant degree on liquidity, and liquidity is based on the ease with which assets can be converted to cash (which normally has an accounting risk of zero) and the likelihood that the conversion would be at the recorded amount. Importantly, all this information should be auditable so that it is possible for auditors to verify the accuracy of the reported amounts as well as related note disclosures on their riskiness via ranges.

The advantage of conceptualizing accounting risk is that it captures both the recognition (existence) uncertainty and

outcome (measurement) uncertainty concepts of the Exposure Draft (IASB 2015a, paragraphs 5.15–5.21; and IASB 2015b, paragraph BC 5.25). The Exposure Draft goes on to specify that all existing assets be recognized in financial statement reporting (IASB 2015b, paragraphs BC 5.11 and BC 5.20). This is despite the fact that there may be huge uncertainties associated with the recognized numbers that are reported in the financial statements, with some clearly not meeting measurement criteria that most observers feel should be a credibility property of accounting numbers used in financial statements (IASB 2015b, paragraphs BC5.43–BC5.44).

The exception the IASB uses to justify loosening principles this way is a recently revised detailed standard, IFRS 9 (IASB 2016), that deals with derivative financial instruments. IFRS 9 requires that derivatives be recognized in the financial statements even though there may be high uncertainty associated with measuring the valuation of derivatives as point estimates on the face of the financial statements (IASB 2015b, paragraphs BC5.8 and BC 5.40). The IASB's proposed conceptual framework (IASB 2015b, paragraphs BC 5, 8) is weak in that it just notes that different existing accounting standards list different probability criteria for recognition. The existence of different probability criteria in the standards should not mean that there is no lower bound on probability for recognition in ethical financial reporting. Basic financial reporting principles should put a floor on acceptable levels of truth regarding future events in all financial reporting. This is equivalent to putting an upper bound on acceptable accounting risk. Rules-based accounting has no such requirement.

The IASB claims such lax recognition treatment is needed because even non-credible measurement can provide "relevant information" without explaining why this information cannot be just disclosed in the notes, as is other relevant information (IASB 2015a, paragraph. 2.13). To us this appears to be a case of allowing financial statement numbers to be 'engineered' through rules about how financial engineering should be reported. It is widely believed that financial engineering helped cause the 2008–2009 financial crisis, so why accountants now should allow financial engineering to be given anomalous treatment by accounting rules is difficult to rationalize. Enron was a pioneering user of derivatives outside the banking industry, and its use of financial engineering was so creative in concealing the true situation that several banks that purportedly helped Enron do this settled lawsuits of over $1 billion (Hull 2010, p. 510).

With the use of the accounting risk concept, it is possible to quantify the failure to faithfully represent future events of an accounting estimate as *the accounting risk associated with the particular estimate of value*. Thus, if an asset is recorded at the value that is probable (IASB 2015b, paragraph BC 5.8), then there is an 'accounting risk' of one minus 'probable' that the recorded asset will not be realized. International audit standards specify 'fair presentation' criteria (IFAC 2014a, ISA 200.13) and the need to assure that accounting estimates do not have 'significant risks' associated with them (IFAC 2014c, ISA 540.11). This suggests global accounting and auditing standard setting should be better coordinated.

However, the IASB Exposure Draft also proposes that verifiability no longer be a required qualitative characteristic of accounting information (IASB 2015a, paragraph 6.61). This proposal seems likely to have arisen, at least in part, because of views within the accounting and auditing professions that faithful representation and conformity with GAAP can occur even though estimates are high risk. We think this is a mistake. We feel that recording high-risk estimates is an important form of ethical blindness in financial reporting that needs to be addressed in the conceptual framework of financial reporting as a way to encourage truthful reporting.

Our point here is that an important aspect of fair presentation and principles-based truthful reporting reasoning is that constraints should be put on the amount of uncertainty allowed in accounting estimates of valuations recorded in the financial statements due to accounting risk. The accounting risk is relevant regardless of the measurement basis used (historical cost or current value), because estimated future cash flows can be used to approximate all measurement bases contemplated in the Exposure Draft (IASB 2015b, paragraph BC6.15). The common feature to these different measurement bases is estimated future cash flows (IASB 2015b, paragraph BC6.45).

While management can thus report highly unreliable estimated figures with little guidance from the accounting profession, the audit function is limited in its ability to effectively monitor the potentially unethical forecasts in accounting estimates. The accounting profession is thus facing significant challenges to develop effective auditing methods for verifying accounting estimates (e.g., see Christensen et al. 2012; Bell and Griffin 2012; Griffith et al. 2015; Bratten et al. 2013; Hurtt et al. 2013). Interestingly, this guidance suggests that high-risk accounting estimates (i.e., high risk of never being realized) can be circumvented by providing additional disclosures on the estimates in the notes to the financial statements. This is like saying an unethical measurement that results in bad accounting numbers being reported on the face of the financial statements can be compensated by (less prominent) note disclosures in the financial statements. In other words, other kinds of disclosures can make up for bad accounting. Unmentioned in this prior literature is whether the disclosures themselves should be verifiable. Presumably they should be, as indicated in IASB (2011), and this introduces issues discussed earlier of verifying subjective judgments that, e.g., involve poorly calibrated ranges.

One wonders then what is the purpose of allowing the bad accounting? This does not appear to be consistent with IASB's stated objective "to provide financial information about the reporting entity that is useful to existing and potential investors" (IASB 2015a, paragraph 1.2). There already exist avenues for more speculative accounting in special purpose-type reports that can be audited, and in which the auditor is obligated under those standards to explicitly state that "actual results are likely to be different from prospective financial information [forecast]" and that the difference "may be material" (IFAC 2014d, ISAE 3400). Such reservations are not required for audits of accounting estimates that appear on the face of GAAP-based financial statements, presumably because they are considered more reliable than forecasts in prospective financial information (e.g., GAAP estimates should not result in significant risk as defined in the auditing standards (IFAC 2014c, ISA 540.10-.11)). This suggests that standards for audits of historical financial statements and standards for audits of prospective information need to be made more coherent, and perhaps the best way to address this is through an appropriate conceptual framework of financial reporting that distinguishes between fair presentation reporting and more speculative financial reporting. One way of making the distinction is by drawing a line between what is acceptable risk of failing to realize a forecasted amount in an accounting estimate that is supposed to result in a 'fair presentation' valuation. A higher risk estimate would then be classified as appropriate only for more speculative reporting of values.

Summary and Conclusion

In summary, there is a contradiction between the faithful representation of future events construct and the IASB proposed changes to its conceptual framework in its Exposure Draft (IASB 2015a). Even the existing conceptual framework can be viewed as superior because it has a 'probable' criterion in its asset definition, and thereby puts some conditions of truthfulness in financial statement numbers. Apparently, the main reason the conceptual framework is being revised is to accommodate recent changes in the accounting for financial instruments to allow any model-based valuation, such as for non-traded derivatives, even if it means 100 % estimation uncertainty (IASB 2015a, paragraphs BC 5.8 and BC 5.40). That is, there can be a 100 % chance of being wrong in the sense that users' decisions are guaranteed to be materially altered using the accounting materiality construct.

There seems to be a sense in the IASB that use of certain finance models represent the truth, and that model risk does not exist when indeed it is quite important as recognized in the financial risk management literature (Hull 2010, chapter 21; Morini 2011).[6] The concept of risk from estimation uncertainties would remind accountants to consider the acceptability of risks using such models for reporting on hedging activities and fair valuation. If the acceptable risk is effectively 100 %, however, then all models and their associated valuations become acceptable and non-comparable because the faithful representation concept and truthfulness have been compromised. It must be noted that Enron also had models for its innovative financial engineering at the time, but this did not mean that its accounting estimates were low risk (Benston and Hartgraves 2002, p. 124).

The inconsistency between faithful representation and the IASB proposals for assets and liabilities concepts thus create a logical gap allowing potentially high-risk accounting numbers. Are such numbers a problem? We have analyzed what Moore et al. (2006) refer to as extreme cases of unethical reporting by looking at the relative frequency of fraud allegations involving accounting estimates that have been the basis of lawsuits. While these data cannot indicate the absolute extent of the problem, our analysis can show the relative extent of the problem of ethical blindness with respect to future events in accounting estimates.

In our empirical study, about half of all losses are found to be due to potentially misleading forecasts about the future. Moreover, in some existing guidance involving specialized audits of projections (hypothetical future outcomes) and forecasts (expected future outcomes), the auditor is required to disclaim the achievability of the forecasts (CPA Canada 2015, AuG-6), or otherwise indicate heightened risk of material misstatement associated with the forecast as in AICPA (2015, AT Section 301). In addition, AuG-6 paragraph 20 states that if a hypothesis is implausible in the circumstances, then the information may be false or misleading 'and the public accountant would be prohibited by the rules of professional conduct from being associated with it.' This is in addition to the requirement to disclaim achievability of future outcomes in future-oriented financial information. Ironically, this disclaimer on achievability of future outcomes is required for specialized reporting on future-oriented financial information, but not for GAAP reporting of estimates. Presumably, this is due to the greater estimation uncertainty associated with more future-oriented estimates. This further suggests that estimation uncertainty from accounting risk should be a key

[6] Hull (2010, p. 445) gives interesting historical banking industry examples of why models cannot be blindly trusted to reflect economic substance. Also see Power (2010) for a critical analysis of the influence of finance theory on accounting standard setting.

determinant of acceptable financial reporting and that it belongs in the conceptual framework.

Overall, our analysis indicates that a primary objective of ethical reporting should be the truthfulness of reporting with respect to future events as well as to the facts. This signals that there should be at least as much concern in professional accounting standards about ethically representing future events as there is about factual accuracy in financial reporting.

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